

Application No. 09/633,002
Office Action dated March 4, 2004
Amendment dated June 10, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-10 (canceled).

Claim 11 (currently amended): A method for removing a deposited film ~~inside a~~ from a member located in a vacuum apparatus, said vacuum apparatus having a chamber which ~~comprises~~ said method comprising:

providing a hot element in the chamber, said hot element disposed away from the deposited film, the hot element having at least a surface which comprises platinum;

placing a said member, in said chamber;

exhausting said chamber;

heating the hot element to 400°C. or higher without generating a plasma;

supplying into the chamber a cleaning gas containing at least one of a fluorine atom and a chlorine atom;

contacting the cleaning gas with the heated hot element to decompose and/or activate the cleaning gas and generate an activated species therefrom;

allowing the activated species to convert the deposited film into a gaseous substance; and

removing the gaseous substance from the chamber.

Claim 12 (previously presented): The method according to claim 11, wherein said chamber comprises a CVD apparatus and the method further comprises:

heating the hot element;

supplying a material gas to the chamber;

contacting the material gas with the hot element to cause decomposition and/or activation of the material gas by said hot element; and

forming the deposited film which comprises at least one element from said material gas on a substrate.

Claim 13 (previously presented): The method according to claim 11, wherein at least a part of a surface of an inner structure of said chamber is covered with platinum.

Claim 14 (previously presented): The method according to claim 12, wherein at least a part of the surface of an inner structure of said chamber is covered with platinum.

Claim 15 (previously presented): The method according to claim 11, wherein said cleaning gas is a gas containing at least one of fluorine (F_2), chlorine (Cl_2), nitrogen trifluoride (NF_3), carbon tetrafluoride (CF_4), hexafluoroethane (C_2F_6), octafluoropropane (C_3F_8), carbon tetrachloride (CCl_4), pentafluorochloroethane (C_2ClF_5), trifluorochlorine (ClF_3), trifluorochloromethane ($CClF_3$), and sulfur hexafluoride (SF_6), and mixtures thereof.

Claim 16 (previously presented): The method according to claim 12, wherein said cleaning gas is a gas containing at least one of fluorine (F_2), chlorine (Cl_2), nitrogen trifluoride (NF_3), carbon tetrafluoride (CF_4), hexafluoroethane (C_2F_6), octafluoropropane (C_3F_8), carbon tetrachloride (CCl_4), pentafluorochloroethane (C_2ClF_5), trifluorochlorine (ClF_3), trifluorochloromethane ($CClF_3$), sulfur hexafluoride (SF_6), and mixtures thereof.

Claim 17. (withdrawn) A CVD apparatus comprising:
a chamber having a material gas inlet and a cleaning gas inlet;
a hot element located in the chamber, the hot element having a surface which comprises platinum;
means for exhausting the chamber;
a source of material gas coupled to the material gas inlet;

means for heating the hot element to a first temperature sufficient to decompose and/or activate the material gas:

a source of cleaning gas coupled to the cleaning gas inlet; and

means for heating the hot element to a second temperature sufficient to decompose and/or activate the cleaning gas to generate an activated species therefrom which active species is able to convert a film deposited inside said chamber to gaseous substance, which gaseous substance can be removed from the chamber by exhausting the chamber.

Claim 18. (withdrawn) The CVD apparatus according to claim 17, wherein at least a part of a surface of an inner structure of said chamber is covered with platinum.

Claim 19. (withdrawn) The CVD apparatus according to claim 17, wherein an electrode for plasma generation is disposed in said chamber.

Claim 20. (withdrawn) The CVD apparatus according to claim 18, wherein an electrode for plasma generation is disposed in said chamber.

Claims 21-26 (canceled)

Claim 27 (currently amended): A method for removing a deposited film from a wall inside a chamber, said method comprising:

providing a hot element, said hot element disposed away from said wall and said deposited film, said hot element having at least a surface which is composed of platinum;

heating said hot element to 400° C. or higher without generating a plasma;

supplying said chamber with a cleaning gas containing at least one of a fluorine atom and a chlorine atom, and first contacting said hot element with said gas to thereby activate said gas; thereafter contacting the deposited film with said activated cleaning gas and converting said deposited film into a gaseous substance; and

removing said gaseous substance from said chamber.

Claim 28 (previously presented): The method according to claim 27, wherein said chamber comprises a CVD apparatus and the method further comprises:

- heating the hot element;
- supplying a material gas to the chamber;
- contacting the material gas with the hot element to cause decomposition and/or activation of the material gas by said hot element; and
- forming the deposited film which comprises at least one element from said material gas on a substrate.

Claim 29 (previously presented): The method according to claim 27, wherein at least a part of a surface of an inner structure of said chamber is covered with platinum.

Claim 30 (previously presented): The method according to claim 28, wherein at least a part of the surface of an inner structure of said chamber is covered with platinum.

Claim 31 (previously presented): The method according to claim 27, wherein said cleaning gas is a gas containing at least one of fluorine (F_2), chlorine (Cl_2), nitrogen trifluoride (NF_3), carbon tetrafluoride (CF_4), hexafluoroethane (C_2F_6), octafluoropropane (C_3F_8), carbon tetrachloride (CCl_4), pentafluorochloroethane (C_2ClF_5), trifluorochlorine (ClF_3), trifluorochloromethane ($CClF_3$), and sulfur hexafluoride (SF_6), and mixtures thereof.

Claim 32 (previously presented): The method according to claim 28, wherein said cleaning gas is a gas containing at least one of fluorine (F_2), chlorine (Cl_2), nitrogen trifluoride (NF_3), carbon tetrafluoride (CF_4), hexafluoroethane (C_2F_6), octafluoropropane (C_3F_8), carbon tetrachloride (CCl_4), pentafluorochloroethane (C_2ClF_5), trifluorochlorine (ClF_3), trifluorochloromethane ($CClF_3$), sulfur hexafluoride (SF_6), and mixtures thereof.

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Claim 33 (new): The method according to claim 11, wherein said member is at least one of a measurement instrument, a sensor, a valve, and a pipe.